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Date.	R.A.	Decl.	Log Δ.	Date.	R.A.	Decl.	Log Δ.
1852.	h m s	° ′		1852.	h m s	° ′	
Feb. 2	12 24 52	+21 45·5	0·21159	Feb. 17	12 18 47	+23 9·4	
3	24 41	50·8		18	18 7	14·9	0·18395
4	24 29	+21 56·2		19	17 26	20·3	
5	24 14	+22 1·7		20	16 43	25·7	
6	23 58	7·2	0·20365	21	15 58	31·0	
7	23 39	12·8		22	15 12	36·2	0·19791
8	23 18	18·4		23	14 24	41·2	
9	22 56	24·0		24	13 35	46·2	
10	22 33	29·7	0·19635	25	12 44	51·0	
11	22 7	35·4		26	11 51	+23 55·7	0·17528
12	21 38	41·1		27	10 57	+24 0·2	
13	21 8	46·8		28	10 1	4·6	
14	20 36	52·5	0·18975	29	9 4	8·8	
15	20 1	+22 58·2		Mar. 1	12 8 6	+24 12·9	0·17253
16	12 19 25	+23 3·8					

Note on the Planet Victoria.[*] By M. Yvon Villarceau.

"The ephemeris of the third planet discovered by Mr. Hind, which I have calculated for every day during six months and a half, depends on the observations during forty-three days. In publishing it, I presented at the same time a comparison of the meridian observations of Paris with my ephemeris. The observations of other astronomers during the whole period agree as well as I could expect with the ephemeris, the maximum errors being $0^{s}{\cdot}66$ in R.A. and $7''{\cdot}4$ in declination.

"To obtain still greater accuracy, I have represented, graphically, the comparisons published by MM. Hartnup, Carrington, Vogler, and Graham, along with those of the observatories of Paris and Cambridge. I have also deduced comparisons from three months' observations made at Washington and collected by Mr. Ferguson. In this way I have constructed nearly 200 ordinates in right ascension and as many in declination, representing the excess of observation above the computations of the ephemeris. Through each of these series of points I have drawn a continuous curve, contenting myself, however, for the first forty days with satisfying, as far as was possible, the Paris meridian observations; and for the rest of the time, with satisfying the observations of Mr. Hartnup. My reasons for this preference are, the great accordance of the Paris observations, with one or two exceptions; and that Mr. Hartnup, whose observations also agree well together, has referred the planet to well-determined stars.

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[*] M. Villarceau has used the name *Clio;* but Mr. Hind, the discoverer, in the exercise of his undoubted right, has selected the name of *Victoria,* a well-established heathen goddess.

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"Taking the ordinates of the two curves for the excess of the observations above the ephemeris, and adding this excess to positions deduced from the ephemeris, I have obtained the fourteen normal positions set down in the following table:—

For Paris Mean Noon.

	Observed — Calculated.		Normal Positions.					
	R.A.	Decl.	R.A.			Decl.		
1850.	s	"	h	m	s	°	′	"
Sept. 18	−0·11	0·0	23	41	1·26	+13	26	42·6
30	·08	+0·2		31	48·31	11	21	41·7
Oct. 12	−0·05	0·8		25	19·75	9	9	39·2
24	+0·04	1·5		23	0·18	7	13	26·0
Nov. 9	·25	2·7		25	6·70	5	46	39·3
17	·42	4·2		31	19·85	5	54	18·2
29	·54	5·3		40	58·47	4	35	4·6
Dec. 11	·61	6·4	23	53	22·03	4	44	51·8
23	·66	7·1	0	7	53·90	5	18	38·8
1851. Jan. 10	·61	7·3		32	39·55	6	43	11·9
25	·45	7·0	0	55	16·49	8	15	6·0
Feb. 9	·28	6·9	1	19	12·46	9	58	24·3
24	+0·08	7·0	1	44	8·27	11	46	40·6
Mar. 11	−0·06	+7·4	2	9	51·98	+13	24	32·0

M. Villarceau then explains his mode of correcting the elements by means of the normal places, and deduces the following *corrected* elements, which represent the observations very closely:—

	° ′ "	
Mean Anomaly	65 46 47·36	1851, Jan. 0·0, Paris M.T.
Long. Perihel.	301 55 17·57	Mean Equinox, 1851, Jan. 0.
— Asc. Node	235 29 31·41	
Inclination	8 23 6·78	
Angle (sin = excentricity)...	12 36 11·58	
Mean Daily Helioc. Motion	994″·43246	
Semi-axis Major	2·3350032,	log = 0·3682875
Excentricity	0·2181980	
Sidereal Period. Time......	3^{y}·5680582	

"The differences between these elements and the normal places are very small. Part of the differences may arise from the uncertainty of the graphical interpolation, which is caused in a great measure by the errors of the observations.* The errors of the tables of the sun and the effects of perturbation must also be taken into

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* "These errors are largest in right ascension, both in the meridian and equatoreal observations, which is probably owing to the difficulty of illuminating the telescope where such faint objects are observed. It seldom happens that a small planet can be observed in position and distance like a double star. We may expect that the powerful meridian instrument, which Mr. Airy has recently erected at Greenwich, will not present the great discordances in right ascension which are now found in the observations of the faint planets."

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account. From the systematic march of the errors, I should be inclined to suppose them due to perturbation.

"I will avail myself of the present opportunity to make a remark on the construction of my ephemeris of *Victoria.* The linear co-ordinates of the sun, taken from the *Nautical Almanac*, have been, as I have mentioned elsewhere, corrected for the terms depending on the sun's latitude. But M. Schumacher communicated to me a remark made by M. Götze, that these co-ordinates have been calculated with a radius vector of the earth, *affected with aberration.* I have only attended to this remark in that part of the ephemeris which belongs to the first three months of 1851. The rectilineal co-ordinates of the sun are so very convenient in use that it is desirable the superintendent should take the preceding remark into consideration; since the *Nautical Almanac* is a work which every astronomer must daily use, and whose merits every astronomer must highly appreciate."

Observations of the Planet Saturn with the 20-foot Equatoreal.

By Mr. Lassell.

"*September* 9, 11½ p.m. The phenomena of *Saturn* were extremely well shown, the air being in an unusually fine state, though some unsteadiness still remained. Power 430. The division of the ring easily visible along the whole of that part of the ring between us and the ball. No other division could be made out certainly. The more dusky surface of the exterior ring gave a striped impression, but no certain line. The 'veil' extended exactly half way from the inner boundary of the inner ring to the nearest edge of the ball. The termination of it was well defined towards the ball, and the sky within it perfectly black, as much so as any part of the sky. But the exterior boundary, though pretty well defined, was less so than the interior; and beyond its evident termination there was a faint but very evident shade upon the ring. No difference in depth of shade of the 'veil' could be suspected, and certainly no dark division separating it into two, neither could any darker division be made out between the 'veil' and the bright ring. Once, for an instant, I suspected a darker boundary, but the impression did not return. Certainly the planet is seen to-night to such advantage, that, if such divisions exist, I think I ought to see them. The shadow of the ball on the ring seemed to be bounded by a straight, not a curved line—or if curved at all, it is concave towards the ball. I could not well trace the dark shade crossing the ball in a continuous line to the dark shade within the ring—it seemed as if the sky dipped down into it, then encroaching upon it and reducing its breadth at those points where the planet's limb touches (apparently) the ring. The faint shading on the bright ring may be traced (growing gradually fainter) to within less than the breadth of the exterior ring of its outer circumference. The